

Enhancing Geospatial Information Management Arrangements: Accelerating the Implementation of the SDGs

Sub-regional Workshop on the UN-IGIF for the Central America and neighbouring Latin America Countries

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UN·IGIF
INTEGRATED GEOSPATIAL
INFORMATION FRAMEWORK

Session I-3: Setting the Scene Countries Moderated Discussion

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PVBLIC
FOUNDATION

Why are we doing all of this?

When was the UN-IGIF created?

Why was it created?

What is its purpose?

What difference will it make?

What is its global influence and impact?

Thread together common perspectives and challenges – current situation, impediments/challenges, and future needs.

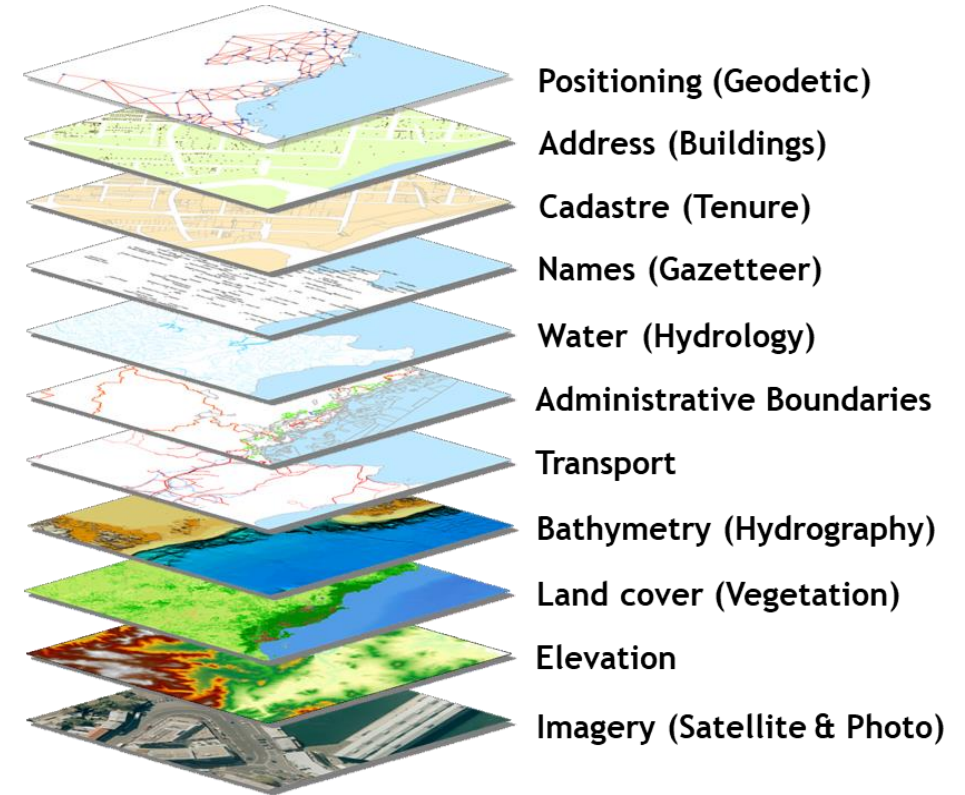
Geospatial Information: Our Origins

How old is this statement? **40 years!**

“Early SDI initiatives focused on data, accessibility, and services, the core components being policy, access network, technical standards, people (including partnerships) and data.

These soon led to the development of, firstly product-based SDI approaches, where models tended to be data producer and national mapping agency led, focusing on data production, database creation, and centralization;

and then process-based SDI approaches, driven more by data sharing and re-using data collected by a wide range of agencies for a great diversity of purposes.”



CASE FOR CHANGE

Geospatial information has emerged as a major contributor to socio-economic transformation in many countries. Yet, there is still a considerable lack of awareness and understanding of the vital and integrative role of geospatial information and related enabling architectures, such as National Spatial Data Infrastructures (NSDIs), in contributing to national development.

This lack of awareness is particularly common at the policy and decision-making levels in developing countries. National policies, and technical capacities and capabilities, need to be better aligned and considerably strengthened so that all countries have the opportunity to develop and contribute to a vibrant national geospatial information ecosystem.

At the national government level, it is recognized that there needs to be more institutional collaboration, interoperability and integration across the various national data information systems and platforms that exist; particularly those related to people and place - statistics, administrative, environment, Earth observations, etc.

Essential data management policies, practices, integration and analytical capacities are currently limited in many countries and are a significant challenge in developing countries. Geospatial information has been typically collected in organisational silos; resulting in data duplication, and the use of different standards, formats and classifications. This has made data harmonisation, maintenance and integration problematic.



There needs to be more institutional collaboration, coordination, interoperability and integration across the various national data information systems and platforms.

1. Where is your country today in enhancing the management and use of geospatial information?

Belize

History from 2009 to 2025, many agencies using GI but duplications, NSDI Policy in 2012 approved by Cabinet, Geospatial Strategy 2024 with Esri to assist and guide GI implementation. National Land Use Policy approved by Cabinet 2025 – jumpstart the NSDI.

Chile

SDI, GI and Geoportals. 20 years of growth of the Chile SDI, institutional capacities strengthened. Technological resources for institutions

Colombia

ICDE consolidated as the national GI ecosystem, guiding GI policy aligned with IGIF, progressing stats-GI interoperability, Key platforms and geoservices – ICDE, GovTech Innovation Lab, Geostats Data Center, and updated national geospatial frameworks

Dominican Republic

Users aware of the need for better data, but not how to use, limited innovations applied to geospatial management, disinterest in the value of GI quality, strengthening data governance, formalization of fundamental datasets, promoting need for data documentation

Cuba

IDERC Update, GEOCUBA Business Group, technological advances and project generation, use of free software, project task life – climate change

Ecuador

Processes to strengthen and update GI ecosystem, governance and legal framework, updating and publishing data, promoting the IGIF, coordinated inter-institutional efforts for geostats integration – GSGF, updating SDIs, strengthening coordination.

Honduras

With an existing SDI: information updating and integration processes, seeking innovation in work methodologies, modernizing tools and instruments, standardizing data interoperability between institutions.

Panama

2013 legal framework – very technical infrastructure. How to get attention of decision-makers. Present at the executive level to make them aware of the importance of a robust geospatial information ecosystem. With a strategic vision.

2. Where does your country aim to be in the next five years?

Belize

Updated National Geospatial Policy, CAP and an Institution on Geospatial. NSDI being implemented, identify funds for CORS network.

Chile

Implementation of National GI Policy and Action Plan, consolidation of national governance, consolidation of geospatial ecosystem with integration with academia and private sector, definition of the system's economic sustainability.

Colombia

Consolidate ICDE as national administrator of GI, implement the National GI Policy, strengthen coordination, establish robust governance model, coherent legal framework.

Dominican Republic

Have a national geospatial data policy in place, SDI strategic plan, protocols for exchange and use of data between agencies, periodic inventory of geospatial data and its applicability.

Cuba

Fully implemented IDERC with web portal, use of GIS in all government agencies, as a tool for decision-making.

Ecuador

2025-2030: consolidate national GI governance, implement a National Action Plan with IGIF, modernize cartographic database, strengthen the SDI, Integrate GI into public policy, develop human talent.

Honduras

Applying the UN-IGIF, positioning GI for decision-making, applying regulatory frameworks derived from the UN-IGIF, developing a new action plan.

Panama

Establish a robust institutional and regulatory framework for GI, implementation of the National GI Strategy that integrates all public institutions, a unified government geospatial platform to support development planning, risk management, public investment and evidence-based decision-making.

3. What do you see as the main challenges in reaching this “ideal” situation within the next five years?

Belize

Funding, capacity building, political and national support (buy in), upgrading infrastructure (hardware/software)

Chile

Awareness/engagement of decision-makers, technological modernization and interoperability, financial sustainability, capacity development, specialized human capital, right communicators. How to scale and coordinate from national, to regional to local (municipal) infrastructures?

Colombia

ICDE requires a legal framework, lack of financial sustainability, technical and technological gaps across sectors and levels of government, outdated data, harmonize concepts (IDEC and ICDE) and related policies, each institution does things differently.

Dominican Republic

Awareness of importance of using GI at hierarchical and management levels, involvement of academic institutions and technical centers, applicability of data use in different fields – multiple uses and purposes.

Cuba

Improve technological infrastructure, internet connectivity, integration of GI by different orgs (planning, water, agriculture, etc), achieving semantic and syntactic interoperability.

Ecuador

Budget constraints, limited access to new technology, uneven technical capacities, institutional gaps, fragmentation in data production, limited geospatial data culture.

Honduras

Ensure GI reflects importance and interest to authorities, financial security, trained human resources, working and progressing according to society’s expectations achieving transformation in government.

Panama

Strengthen governance and coordination, consolidate the Panama SDI with leadership and common policies, ensure institutional, human and financial stability ensuring continuity beyond administrative changes, update and maintain fundamental data and develop mechanisms to manage the data life cycle across multiple data themes.

4. What potential opportunities could help address some or all of these challenges?

Belize

National and Regional Partnerships and technical support, Training, building climate resiliency – national priority for politicians. They want to know what is happening.

Chile

National GI Policy, closer relationship with academic and private sectors, actual day-to-day needs for the use of GI, use of AI and need for GI for its application.

Colombia

Progress in legal process, advancing national initiatives, international cooperation, implement ICDE business model, expansion of Geostat Data Center, territorial strengthening of systems.

Dominican Republic

Implementation of national and international projects focused on land use planning, risk management and food security, coordination between sectors responsible for data collection and analysis, regional forums on best practices and related initiatives, collaboration agreements between statistics and administrative registries, use of data in different areas.

Cuba

Exploit EO, freely accessible sat data for agriculture, drought, land use and coastal areas, open-source platforms continue work with QGIS.

Ecuador

Strategic partnerships with international organizations, academic and scientific cooperation, growth of open data ecosystem, implementation of UN-IGIF, digital transformation, increasing demand for GI.

Honduras

Political, public and private social partnerships, access to funding for implementing projects that strengthen geomatics and skills, innovation programs implemented in conjunction with institutions.

Panama

Governance, experience across multiple governments allows to build and visualize how these data support and benefit decision-makers, readiness to address data sharing

5. How familiar are you with UN-GGIM, the UN-GGKIC, the IGIF, and the CAP?

Belize

First attendance at UN-GGIM Americas, have been attending UN-GGIM, not been an active MS – want to be.

Chile

Active members of all groups. Recently finalized the National Action Plan.

Colombia

Active in all processes, IGIF is the main framework in Strategic Plan.

Dominican Republic

Participation in “the club” and trying to walk the same way together. Regional meetings, events, working groups, workshops, webinars, IGIF, etc. When you get to a resolution with so many, there is a will!

Cuba

Involved in all events.

Ecuador

Participation in sessions and technical events, engagement in regional activities, leadership in Working Groups, collaboration with international agencies, begun the implementation and adoption of the IGIF CAP.

Honduras

Participation in joint sessions and events, working groups, implementing the UN-IGIF. Still to work with UN-GGKIC.

Panama

Fully embedded. Being invited into UN-GGIM opened the doors to start an implementation process – SDG program and then IGIF, and supported by ECLAC.

6. What kind of support would you like to receive from UN-GGIM, UN-GGKIC, or other partners?

Belize

UN-IGIF implementation, build on existing/ongoing national initiatives, innovation and technology support, funding, capacity development.

Chile

Support, coordination, strategic guidance, capacity building, consulting, community. Including ECLAC, PAIGH, Government and Countries

Colombia

Technical assistance for governance model of ICDE, harmonizing standards and definitions, Guidance for financial models, training and capacity building, international exchange on GeoAI and innovation, development of regional pilots and use cases, access to methodologies for value and benefits.

Dominican Republic

Access to in-person and virtual trainings related to the use of GI, a high-level event with international participation aimed at decision-makers.

Cuba

Training workshops to prepare professionals, create working groups with instructors on key topics - software, technical documents, etc,

Ecuador

Ongoing technical assistance, international cooperation, support to strengthen GI governance, continuous capacity building and specialized training, access to UN-GGKIC tools and methodologies, support for technological modernization.

Honduras

Partnerships for the implementation of projects aligned with SDGs and Honduras realities, technical and administrative support for project implementation, development of baseline analysis of current situation, baseline analysis, etc.

Panama

Exchange of experiences is of great help and could be put into practice, workshops for financial, good practices, data exchange, open/low-cost technology, workflows.

Costa Rica

Need technical assistance, strengthening of infrastructure, storage, national IGIF-GSGF training strategy, national interoperability framework.

Costa Rica

Stat-geo integration with GSGF and IGIF, interoperability, strategic alignment, based on international standards and frameworks

Stewardship, governance and institutional harmonization – complementarity in GI leadership, coordinated national infrastructure, institutional guidelines, inter-institutional coordination as a foundation for the IGIF.

National Geostats Framework and INEC Platforms – MGN as standardized territorial base, INEC Geoportal: open access, interoperable, integration of stats with updated GI.

Geospatial Innovation and Global trends – EO, Integration of AI, migration to cloud geospatial infrastructure, digital twins

Strengths of National Ecosystem – strategic alliances, growing corporate IDEi through SNIT and IDECORI, capabilities in carto, GIS, stats and territorial analysis, increasing focus on open data, interoperability and standards for users and decision-makers

Challenges to consolidate GI – inter-institutional governance under development, technology and infrastructure insufficient

Observations

Countries are identifying that many geospatial systems and technical services have been strengthened/updated/consolidated at the national level in the past years and will be 'completed and/or implemented' in the next 5 years.

The majority of information shared is concerned with geospatial 'systems and services', rather than 'solutions'. So more about the traditional SDI model of provision of data as opposed to provision of service-orientated solutions. Emphasis on systems rather than solutions!

The SDI model is valuable, BUT it needs to be 'everything' – all or nothing. Otherwise the idea of an integrated geospatial ecosystem across whole of Government breaks down.

It seems that the communication to, and attention of, decision-makers is still falling short. So, what is the problem? What needs to change? Is there an awareness/communication problem, or is there more to it?

Not easy to move from one government administration to another. How to anchor across multiple institutions? How to be more valued and needed? To be an agency that can deliver.

Reality: Governments are doing things different today, not so coordinated, more just in time, project based instead of program based, funding for short (political) term rather than enduring and sustained long-term. New staff are therefore temporary and project based rather than being permanent. Government's are becoming more focused on solving today's issues (3-4 year political cycle) rather than planning for the future. Personnel also change more than in the past. Governments are wanting to sell good news and media announcements, not mundane technical or scientific aspects – unfortunately.

Tip of the iceberg – politicians only want to see the tip, not all of the machinery underneath

Creating a culture for users, children, students, etc.....and politicians!

Decision-makers are not interested in "data". They are interested in "solutions". They do not know what they do not know.

Realizing the Data Value Chain

There is a recognition of the urgent **'data needs, availability and use'** towards the wider digital data and information ecosystem, including **geospatial, Earth observations** and other **location-based information** across industry sectors.

However, the availability of and accessibility to data remains the vital missing link for many of the world's countries.

Many innovative **technologies, data acquisition** capabilities, and even petabytes of data, exist. BUT...many countries either **do not have access** to this data or **do not know what to do with it** or **how to use it**.

Therefore, how do we **extract** more **value** and **purpose** from (often fragmented) **data** to **create impact**?



Realizing the Data Value Chain

Ensuring **Data** has **Impact**

If data is **arranged, organized and structured**, it then becomes the building blocks of information. Then the real value begins...

From (often integrating) **Data** we build **Information**

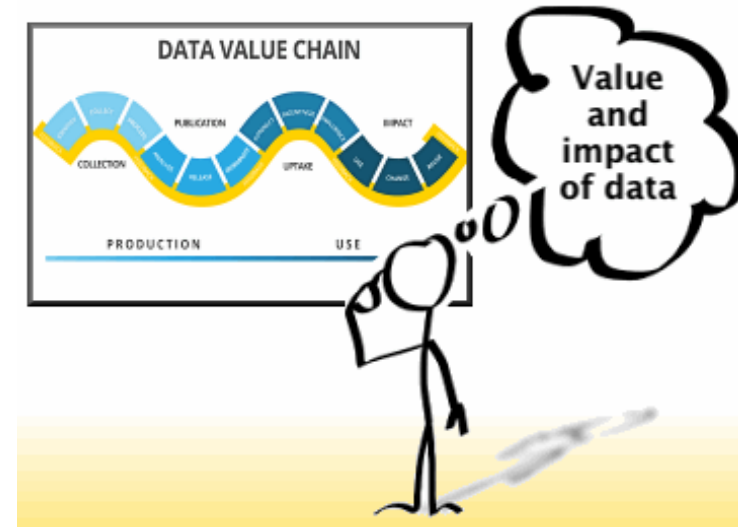
enabling us to create **Knowledge** (or **Understanding**) which provides with it **Insights**

enabling us to then make **Decisions** in such a way as to take **Action**

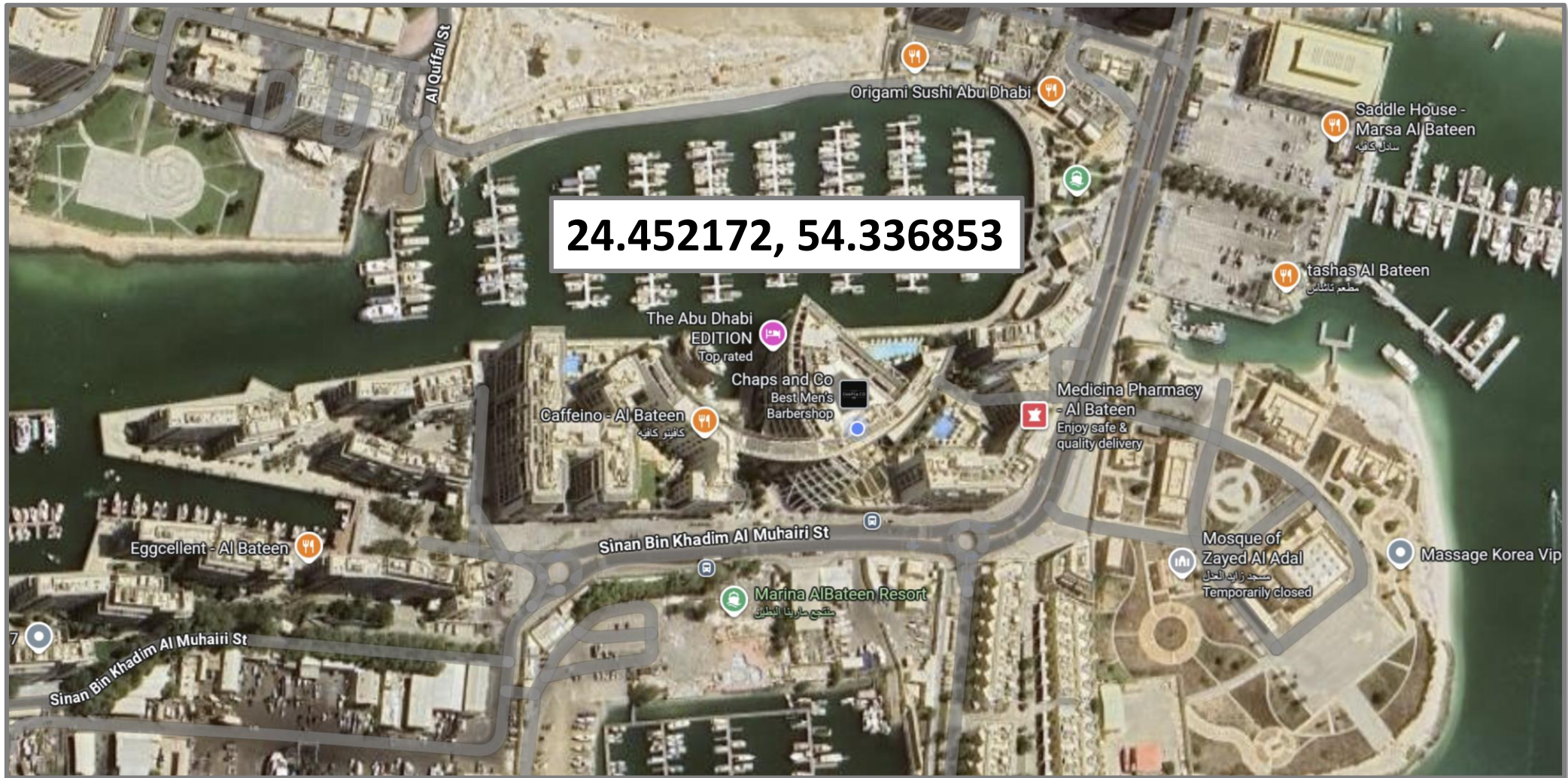
that has measurable and positive **Impact**.

The Data Value Chain:

Data > Information > Knowledge/Understanding > Insights > Decisions > Action > Impact



Contextualizing Data



COP29

2024 is the hottest year on record, EU scientists say

By Kate Abnett and Alison Withers

December 9, 2024 9:36 AM EST · Updated 7 hours ago

BRUSSELS, Dec 9 (Reuters) - This year will be the world's warmest since records began, with extraordinarily high temperatures expected to persist into at least the first few months of 2025, European Union scientists said on Monday.

The data from the EU's Copernicus Climate Change Service (C3S) comes two weeks after U.N. climate talks yielded a \$300 billion deal to tackle climate change, a package poorer countries blasted as insufficient to cover the soaring cost of climate-related disasters.

C3S said data from January to November had confirmed 2024 is now certain to be the hottest year on record, and the first in which average global temperatures exceed 1.5 degrees Celsius (2.7 degrees Fahrenheit) above the 1850-1900 pre-industrial period.

The previous hottest year on record was 2023.

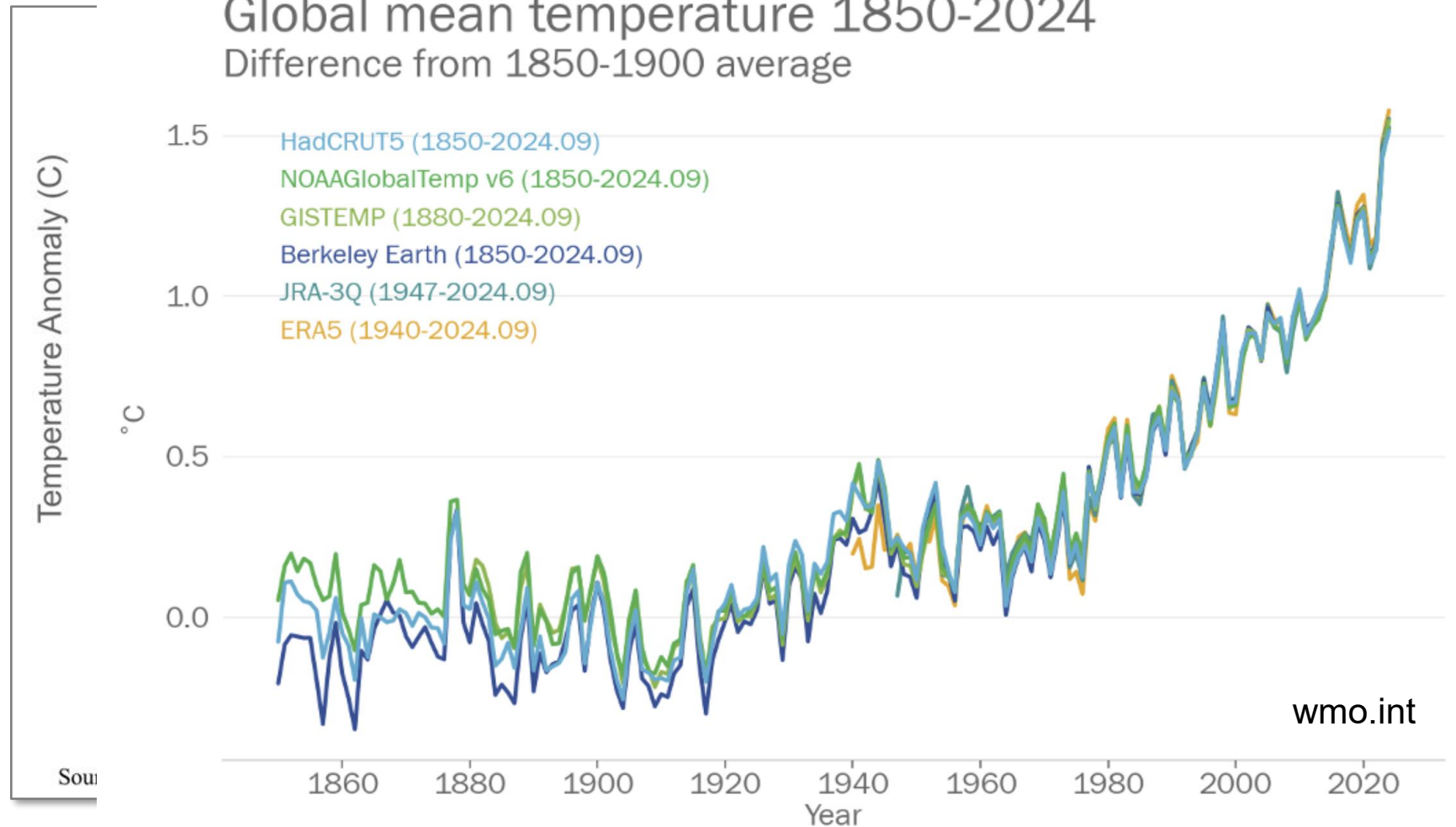
Contextualizing Data

What is the hottest year on record?

Land-Ocean Temperature Index (C)

Year	No_Smoothing	Lowess(5)
1880	-0.18	-0.10
1881	-0.09	-0.14
1882	-0.11	-0.17
1883	-0.18	-0.21
1884	-0.29	-0.24
1885	-0.33	-0.27
1886	-0.32	-0.28
1887	-0.37	-0.28
1888	-0.18	-0.27
1889	-0.11	-0.26
1890	-0.36	-0.26
1891	-0.23	-0.26
1892	-0.28	-0.27
1893	-0.32	-0.27
1894	-0.31	-0.25
1895	-0.23	-0.23
1896	-0.12	-0.21
1897	-0.12	-0.19
1898	-0.28	-0.17
1899	-0.18	-0.18
1900	-0.09	-0.21

Global mean temperature 1850-2024
Difference from 1850-1900 average



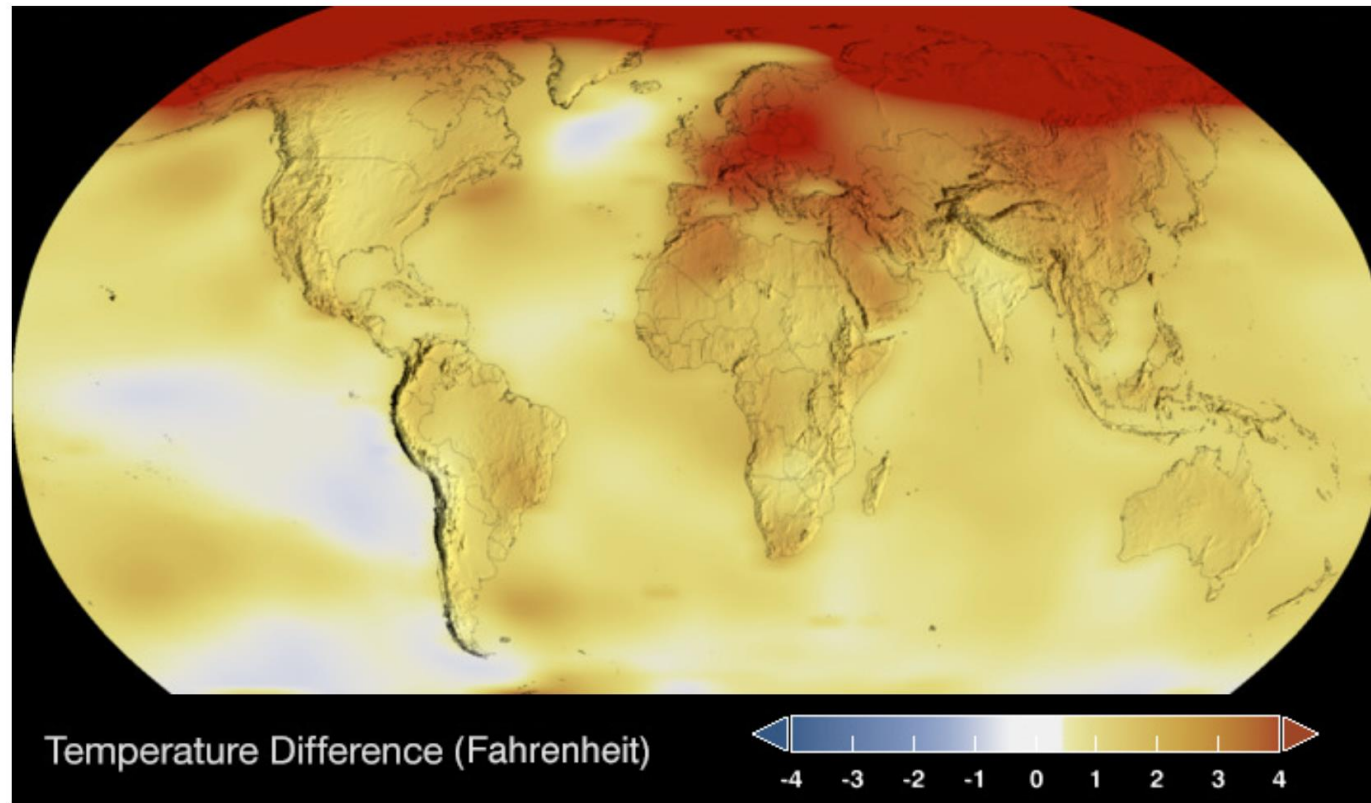
wmo.int

Contextualizing Data

What is the hottest year on record?

Data source: NASA/GISS

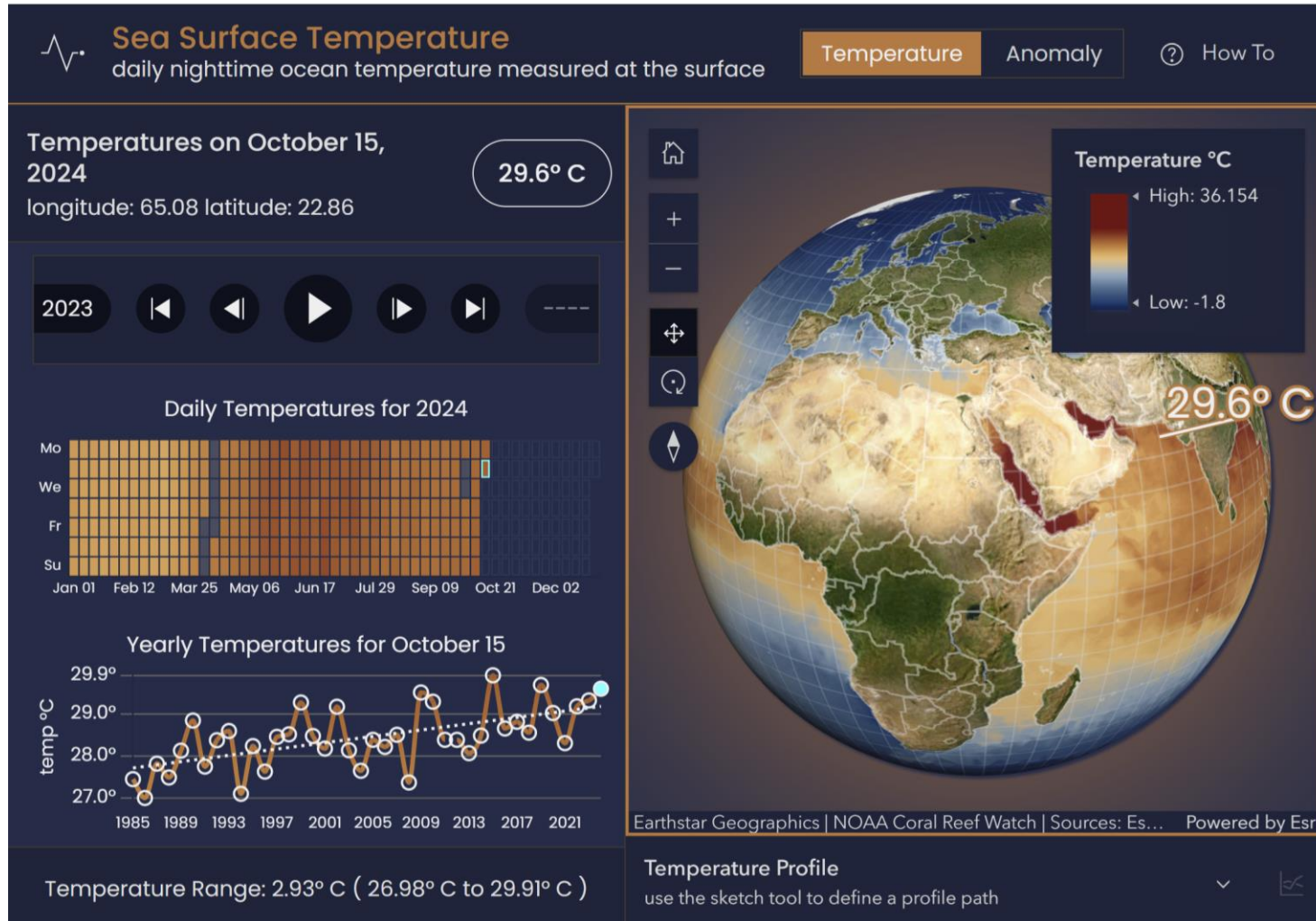
Credit: NASA's Scientific Visualization Studio



▶ 1884 ————— ○ 2022

Contextualizing Data

What is the hottest year on record?



CLIMATE

SIDS are particularly vulnerable to the adverse impacts of climate change, including, erratic precipitation, increasingly frequent and extreme weather phenomena, more frequent and severe tropical cyclones, floods and drought, diminishing fresh water resources, desertification, coastal erosion, land degradation and sea-level rise, which represent the gravest of threats to the survival and viability of their people, natural ecosystems, and overall sustainable development. The impacts and implications of climate change on SIDS include humanitarian, economic, social, cultural, ecological and, as exacerbated by other factors, security consequences.

Explore Climate